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Introduction

Overview

The IP Office CTI Link is available in Lite and Pro versions, which provide run-time interfaces for applications to use. The Software Development Kit (SDK) provides documentation on both Lite and Pro interfaces for software developers.

Both the Lite and Pro offerings are the same program. The additional functionality provided by IP Office CTI Link Pro is enabled when the CTI Link Pro licence key is installed (see page 6).

### IP Office CTI Link Lite

IP Office CTI Link Lite is a free of charge offering, and contains the following component:

- **TAPI\textsuperscript{Lite}**

  This component implements Microsoft TAPI, and allows programs to control one telephone line per PC. It provides simple CTI, including answer, hangup, make-call, transfer, and screen-popping functionality. Please see the TAPI\textsuperscript{Lite} Developers Guide for more details on TAPI\textsuperscript{Lite} and TAPI\textsuperscript{Pro}.

### IP Office CTI Link Pro

IP Office CTI Link Pro includes all of the Lite functionality. It contains the following components:

- **TAPI\textsuperscript{Pro}**

  This component provides both first-party and third-party TAPI control of telephony devices. In addition to the functionality provided by TAPI\textsuperscript{Link} Lite, it also adds the ability to receive information on ACD queues, hunt groups, and provides additional advanced functionality. Please see the TAPI\textsuperscript{Link} Developers Guide for more details on TAPI\textsuperscript{Link} Lite and TAPI\textsuperscript{Link} Pro.

- **Dev\textsuperscript{Link} Pro**

  This component provides a real-time event stream. The real-time event stream provides information on telephone activity as and when that activity occurs, and also provides information on trunk activity.
Installation and Configuration

Overview

The IP Office CTI Link installation primarily concerns the installation and configuration of the TAPI driver, both of which are detailed in the following paragraphs. Installation of the DevLink files is also detailed. For programming details, refer to the TAPI Link Developer’s Guide and the DevLink Programmer’s Guide respectively.

Installing TAPI\textit{Link} and Dev\textit{Link}

The IP Office TAPI Service Provider and the Dev\textit{Link} files are both installed from the IP Office User CD.

Perform the following:

1. Insert IP Office User CD (self installing).
2. The Workstation Installation Wizard - Welcome screen displayed.
3. Click on Next and Identifying Your Unit screen displayed.
4. Enter both your User Name (or select from existing) and User Password. Click on Next.
5. The Ready to Install screen displayed. Click on Finish.
6. A progress bar is displayed and on completion the Welcome to the InstallShield Wizard for IP Office User Suite screen is displayed. Click Next.
7. The Choose Destination screen displayed.
8. Either accept default or click Browse and select your own destination folder. Click Next.
9. On the Select Components screen tick the TAPI box and, if required, the Dev\textit{Link} box (see Notes below). Do not change any other setting.
10. The Select Program Folder screen is displayed.
11. Either accept default or enter a new folder name. Click Next.
12. A progress bar is displayed and on completion the InstallShield Wizard Complete screen is displayed.
13. Click Finish to exit from install routine.

\textbf{Note:} Dev\textit{Link} is installed and used in conjunction with 3\textsuperscript{rd} party applications, e.g. Call Costing software. For more information please refer to the IP Office CTI Link Dev\textit{Link} Programmer’s Guide.
Installing the Wave Driver

The IP400 wave driver is called “nawave32.drv”. It is in the “wave32” directory on the User CD. It is a 32bit WAVE driver, and therefore only works on Windows NT, Windows 2000 and Windows XP.

It is not plug-and-play as there is not actually any hardware associated. It is a soft emulation. You therefore need to install it manually.

Windows XP

In the control panel select Add Hardware. You have to wait for your PC to do a Search for new Devices, which takes about 30 seconds, and does not actually achieve anything.

Perform the following:
1. Select “Yes, I have already connected the hardware”
2. Select “Add a new hardware device”
3. Select “Install the hardware that I manually select from a list (Advanced)”
4. Select “Sound, video and game controllers”
5. Press the “Have Disk” button
6. Navigate to the “wave32” directory on the CDROM. Select the oemsetup.inf file.

Once the wave driver is installed, you must ensure that it is only used by TAPI!! Otherwise, the system will start using it inappropriately, like playing “ding.wav” when you receive e-mail. This will cause problems.

From the Control Panel, Select “Sounds and Audio Devices”. Ensure that no preferred devices use the WIDWOD32 driver.

This is not sufficient on it’s own, however. You need to prevent its use explicitly.

Go to: “Sounds and Audio Devices/Hardware/Avaya IP400 32 bit WIDWOD Driver/Properties/Properties/Properties”

Check the box labelled “Do not map through this device”.

Windows 2000

In the control panel select Add/Remove Hardware. You have to wait for your PC to do a Search for new Devices, which takes about 30 seconds, and does not actually achieve anything.

Perform the following:
1. Select “Add New Device”
2. Select “No I want to select hardware from a list”
3. Navigate to the “wave32” directory on the CDROM. Select the oemsetup.inf file.

Once the wave driver is installed, you must ensure that it is only used by TAPI!! Otherwise, the system will start using it inappropriately, like playing “ding.wav” when you receive e-mail. This will cause problems.

From the Control Panel, Select “Sounds and Multimedia”. Ensure that no preferred devices use the WIDWOD32 driver.

This is not sufficient on it’s own, however. You need to prevent its use explicitly.

Go to: “Sounds and Multimedia Properties/Hardware/IP400 32 bit WIDWOD Driver/Properties/Properties/Properties”

Check the box labelled “Do not map through this device”.
**Windows NT4**

In the Control Panel select Multimedia/Devices/Audio Devices.

Perform the following:
1. Press **Add**.
2. Select **Unlisted or Updated Driver**.
3. Browse to the “wave32” directory on the User CD. Press **OK** to add the “IP400 32 bit WIDWOD driver”.

Once the wave driver is installed, you must ensure that it is only used by TAPI! Otherwise, the system will start using it inappropriately, like playing “ding.wav” when you receive e-mail. This will cause problems.

From the Control Panel, Select “Multimedia”. Ensure that no preferred devices use the WIDWOD32 driver.

This is not sufficient on its own, however. You need to prevent its use explicitly.

Go to: **Multimedia/Devices/Audio Devices/Audio for IP400 32 bit WIDWOD driver /Properties**

Check the box labelled “Do not map through this device”.

---

**Installing the CTI TAPI Link Pro and Wave Licenses**

You do not need a license in order to use the TAPI driver, but the license provides the following additional functionality:

- Third Party mode
- ACD Queue monitoring
- lineDevSpecific function enabled

These are described in “Configuring the TAPI Driver” on page 7.

In addition, to use the Wave functionality you need to install a Wave User’s Licence for each Wave user.

To install the TAPI licenses, proceed as follows:
1. Run the IP Office Manager. This is installed from the IP Office Admin CD.
2. Load the configuration file for your IP Office.
3. Select **License** on the tree in the left hand window.
4. Right-click in the right hand window and select **New**.
5. Type in the 32 character license key.
6. The IP Office Manager will indicate whether the license is valid or not.
Configuring the TAPI Driver

TAPI Service Providers are configured using a Windows Control Panel applet. The name of the applet is not the same across all versions of Windows. The following table indicates the name of the applet and the tab that must be selected within the applet:

<table>
<thead>
<tr>
<th>Windows Version</th>
<th>Control Panel Applet</th>
<th>Tab</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP Pro</td>
<td>Network and Internet Connections,</td>
<td>Advanced</td>
</tr>
<tr>
<td></td>
<td>Phone and Modem Options</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>Phone and Modem Options</td>
<td>Advanced</td>
</tr>
<tr>
<td>ME</td>
<td>Telephony</td>
<td>Telephony Drivers</td>
</tr>
<tr>
<td>98</td>
<td>Telephony</td>
<td>Telephony Drivers</td>
</tr>
<tr>
<td>NT4</td>
<td>Telephony</td>
<td>Telephony Drivers</td>
</tr>
<tr>
<td>95</td>
<td>Telephony</td>
<td>Telephone Drivers</td>
</tr>
<tr>
<td></td>
<td>Note: TAPI 2.1 must be installed on Windows 95. After installing IP Office TAPI, TAPI 2.1 installation, tapi2195.exe, can be found in the IP Office installation directory, e.g. Program File/Avaya/IP Office/TAPI/Win95.</td>
<td></td>
</tr>
</tbody>
</table>

Run the appropriate applet for your version of Windows and select the tab indicated above. You will be presented with the list of TAPI Service Providers that you have installed. The IP Office TAPI Service Provider will be in the list of installed TAPI Service Providers. Select **Avaya IP Office TAPI Service Provider** and press **Configure**. You will be presented with the **Avaya TAPI Configuration** menu screen.

![Avaya TAPI configuration](image)

The IP Office TAPI Service Provider can operate in Single User mode or Third Party mode. A license must be purchased to enable the Third Party mode. Note that the unlicensed version will not prevent you from selecting this option but it will not work.

Single User mode means that the TAPI application can control and/or monitor a single telephony device. Third Party mode means that the TAPI application can control and/or monitor all telephony devices on a particular IP Office unit.

Note that on some versions of Windows it will be necessary to reboot the PC (or just restart the telephony service) in order for configuration changes to take effect.
Single User Mode
Enter the IP address of the IP Office unit in the box labelled Switch IP Address. Select the Single User option. Enter the user name and password for the extension that is to be monitored and/or controlled by TAPI. Normally, the user name will be the name of a person associated with a physical telephone extension.

Third Party Mode
Enter the IP address of the IP Office unit in the box labelled Switch IP Address. Select the Third Party option. Enter the password for the switch. This is the same password that is entered in Manager when loading the configuration of the switch. By default, Third Party mode will provide a TAPI line for every physical extension attached to the IP Office. The checkboxes associated with Third Party mode enable additional entities to be monitored and/or controlled by TAPI.

WAV Users
If you are using the Wave Driver in Third Party mode then you will need to check the WAV User checkbox to provide access to the TAPI lines associated with WAV Users.

ACD Queues
The IP Office can be configured to queue incoming calls that are being presented to a group of internal users. For example, if your IP Office was configured with a group of call center agents, you would want to queue an incoming call until an agent becomes available to take the call. Checking the ACD Queues checkbox provides lines to monitor and/or control the queue of calls against a group.

Configuring IP Office for TAPI
This section describes the configuration of the IP Office using the Manager application. There are two ways in which you can use TAPI with IP:

1. If your application monitors telephones but does not control them, then there is no configuration necessary.
2. If your application controls telephones, you should configure all users that will be controlled as an off-hook station. This will cause the user's phone to return to the idle state when a call is hung up using TAPI. Without this option set, the phone will remain in a disconnected state until the phone is hung up manually. The off-hook station checkbox can be found on the Telephony tab of the User's setting in Manager.
## Glossary

This section contains the list of all abbreviations and acronyms used in this document.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACD</td>
<td>Automated Call Distributor</td>
</tr>
<tr>
<td>CD</td>
<td>Compact Disk</td>
</tr>
<tr>
<td>ID</td>
<td>Identifier</td>
</tr>
<tr>
<td>I/O</td>
<td>Input / Output</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>ISDN</td>
<td>Integrated Standard Digital Network</td>
</tr>
<tr>
<td>ME</td>
<td>Millennium Edition (Windows)</td>
</tr>
<tr>
<td>MSDN</td>
<td>Microsoft Developer Network</td>
</tr>
<tr>
<td>PSTN</td>
<td>Public Switched Telephone Network</td>
</tr>
<tr>
<td>SDK</td>
<td>Software Developer’s Kit</td>
</tr>
<tr>
<td>TAPI</td>
<td>Telephony Applications Programming Interface</td>
</tr>
<tr>
<td>TSP</td>
<td>Telephony Service Provider</td>
</tr>
<tr>
<td>TSPI</td>
<td>Telephony Service Provider Interface</td>
</tr>
<tr>
<td>UUI</td>
<td>User-to-User Information</td>
</tr>
</tbody>
</table>
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